



Application No. 10/536,894
Amendment dated February 14, 2007
Reply to Office Action of September 14, 2006

Docket No.: 4720-0111PUS1

AMENDMENTS TO THE CLAIMS

1-27. (Cancelled)

28. (Currently Amended) A cross-linked foaming method comprising:

preparing at least ~~one~~ two foaming materials for a cross-linked foaming, each of the foaming materials processed to have a plane or three-dimensional shape;

forming at least one interfacing pattern on a surface of at least one of the foaming materials using at least one interfacing material that prevents chemical and physical interaction between the foaming materials; and

forming a cross-linked foam by foaming the foaming materials including the foaming material having the interfacing pattern thereon, the cross-linked foam having a foam body and an internally-formed surface.

29. (Previously Presented) The method according to claim 28, further comprising combining another foaming material with the foaming material having the interfacing pattern thereon before the step of forming the cross-linked foam.

30. (Currently Amended) The method according to claim 28, wherein at least one of the foaming materials is selected from either an EVA-based film ~~and or~~ a material having a plane or three-dimensional shape with a surface roughness to easily form the interfacing pattern thereon.

31. (Currently Amended) The method according to claim 29, wherein at least one of the foaming materials is selected from either an EVA-based film ~~and or~~ a material having a plane or three-dimensional shape with a surface roughness to easily form the interfacing pattern thereon.

32. (Currently Amended) The method according to claim 28, wherein at least one of the foaming materials is selected from ~~a~~the group consisting of:

synthetic resins including an ethylene-vinyl acetate (EVA)-based resin and a polyethylene-based resin, or a copolymer of resins,

a natural or synthetic rubber, and

a composite material including at least one material selected from the synthetic resins and the copolymer and at least one material selected from the natural rubber and the synthetic rubber.

33. (Currently Amended) The method according to claim 29, wherein at least one of the foaming materials is selected from ~~a~~the group consisting of:

synthetic resins including an ethylene-vinyl acetate (EVA)-based resin and a polyethylene-based resin, or a copolymer of resins,

a natural or synthetic rubber, and

a composite material including at least one material selected from the synthetic resins and the copolymer and at least one material selected from the natural rubber and the synthetic rubber.

34. (Currently Amended) The method according to claim 28, wherein the interfacing material is selected from ~~a~~the group consisting of liquid phase materials, solid phase materials, and film-type materials.

35. (Currently Amended) The method according to claim 28, wherein the interfacing pattern is formed by one of process methods including a printing, a transcription, a coating, a deposition, a spraying, a cloth or other material attachment, and an inserting, ~~an attachment and modifications of these process methods.~~

36. (Currently Amended) The method according to claim 28, wherein the interfacing material includes at least one foaming agent selected from foaming agents that are the same or different kinds of the foaming agent for at least one of the foaming materials.

37. (Currently Amended) The method according to claim 28, wherein ~~if~~ in the step of forming the at least one interfacing pattern, two or more interfacing patterns are formed, and each of the interfacing patterns is formed using a same or different material.

38. (Currently Amended) The method according to claim 28, wherein the step of forming the cross-linked foam is performed either by using a pressure cross-linked foaming method, or a normal pressure cross-linked foaming method, ~~or a modification thereof.~~

39. (Currently Amended) The method according to claim 38, further comprising adding a material that is the same as or different from at least one of the foaming materials to a remaining space of a molding die before the step of forming the cross-linked foam when the step of forming the cross-linked foam is performed by using the pressure cross-linked foaming method.

40. (Previously Presented) The method according to claim 28, further comprising injecting air or liquid material into a space formed by the internally-formed surface of the cross-linked foam after the step of forming the cross-linked foam.

41. (Previously Presented) The method according to claim 28, further comprising re-molding the cross-linked foam after the step of forming the cross-linked foam.

42. (Previously Presented) The method according to claim 41, wherein the re-molding is performed together with one of materials that are the same as or different from the cross-linked foam.

43. (Currently Amended) The method according to claim 28, further comprising inserting at least one of materials that are the same as or different from at least one of the foaming materials into a space formed by the internally-formed surface after forming the cross-linked foam.

44. (Currently Amended) The method according to claim 41, further comprising inserting at least one of materials that are the same as or different from at least one of the foaming materials into a space formed by the internally-formed surface before re-molding the cross-linked foam.

45. (Currently Amended) The method according to claim 42, further comprising inserting at least one of materials that are the same as or different from at least one of the foaming materials into a space formed by the internally-formed surface before re-molding the cross-linked foam.

46. (Previously Presented) The method according to claim 43, further comprising re-molding the cross-linked foam after inserting the material into the space formed by the internally-formed surface.

47. (Currently Amended) The method according to claim 28, further comprising after the step of forming the cross-linked foam:

forming an air passage extending from a surface to a space formed by the internally-formed surface of the cross-linked foam; and

inserting one of materials that are the same as or different from at least one of the foaming materials into the space through the air passage.

48. (Currently Amended) The method according to claim 41, further comprising before the step of re-molding the cross-linked foam:

forming an air passage extending from a surface to a space formed by the internally-formed surface of the cross-linked foam; and

inserting one of materials that are the same as or different from at least one of the foaming materials into the space through the air passage.

49. (Currently Amended) The method according to claim 42, further comprising before the step of re-molding the cross-linked foam:

forming an air passage extending from a surface to a space formed by the internally-formed surface of the cross-linked foam; and

inserting one of materials that are the same as or different from at least one of the foaming materials into the space through the air passage.

50. (Currently Amended) The method according to claim 43, wherein the different material from at least one of the foaming materials is selected from ~~a~~the group consisting of gas, liquid and solid materials.

51. (Currently Amended) The method according to claim 44, wherein the different material from at least one of the foaming materials is selected from ~~a~~the group consisting of gas, liquid and solid materials.

52. (Previously Presented) The method according to claim 28, further comprising rolling up the foaming material having the interfacing pattern thereon before the step of forming the cross-linked foam.

53. (Previously Presented) The method according to claim 29, further comprising rolling up the foaming material having the interfacing pattern thereon before the step of forming the cross-linked foam.

54. (Currently Amended) The method according to claim 28, further comprising adding a ~~different material~~ different from the foaming material to the foaming material having the interfacing pattern before the step of forming the cross-linked foam.

55. (Canceled)

56. (Withdrawn) A cross-linked foam fabricated by the method of claim 28.

57. (Withdrawn) A cross-linked foam comprising:

a foam body; and

at least one inner cavity structure formed inside the foam body,

wherein the foam body and the inner cavity structure are formed simultaneously.

58. (Withdrawn) The cross-linked foam according to claim 57, wherein the inner cavity structure is connected to at least one surface of the foam body.

59. (Withdrawn) The cross-linked foam according to claim 57, wherein the foam body includes at least one air passage connected to the inner cavity structure.

60. (Withdrawn) The cross-linked foam according to claim 59, further comprising a valve at the air passage to control an inflow and an outflow of air and/or moisture.

61. (Withdrawn) The cross-linked foam according to claim 57, wherein the inner cavity structure is filled with one or more materials that are the same as or different from the foam body.

62. (Withdrawn) The cross-linked foam according to claim 57, wherein a molded material that is the same material as or a different material from the foam body is inserted into the inner cavity structure.

63. (New) The method according to claim 28, wherein the step of forming the cross-linked foam includes removing the foaming material including the interfacing pattern thereon from the cross-linked foam after foaming the foaming materials.

64. (New) The method according to claim 28, wherein the internally-formed surface of the cross-linked foam defines a cavity in the cross-linked foam.

65. (New) The method of according to claim 64, wherein the cavity has a pattern corresponding to the interfacing pattern.